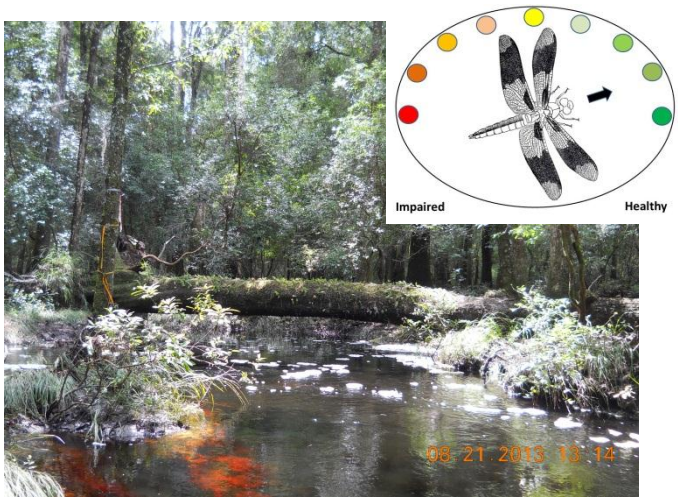
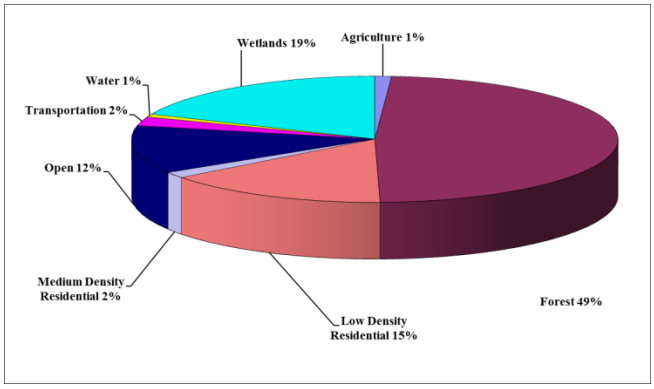
## Waterbody: Freeman Creek




## Basin: Ochlockonee River

Freeman Creek is a tannic, slightly acidic, phosphorus-limited stream that flows into Lake Talquin and is located in western Leon County.

While the following pie chart shows the majority of the 5,278 acre watershed is relatively undeveloped, residential, agricultural, and transportation land uses make up approximately 20% of the watershed. Increases in stormwater runoff, and waterbody nutrient loads can often be attributed to these types of land uses.




### Background

Healthy, well-balanced stream communities may be maintained with some level of human activity, but excessive human disturbance may result in waterbody degradation. Human stressors may include increased inputs of nutrients, sediments, and/or other contaminants from watershed runoff, adverse hydrologic alterations, undesirable removal of habitat or riparian buffer vegetation, and introduction of exotic plants and animals. State water quality standards are designed to protect designated uses of the waters of the state (*e.g.,* recreation, aquatic life, fish consumption), and exceedances of these standards are associated with interference of the designated use.

### Methods

Surface water sampling was conducted to determine the health of Freeman Creek and met the collection and analysis requirements of the Florida Department of Environmental Protection (FDEP).

### Results

*Nutrients*

The nutrient thresholds and results are found in Table 1. According to FDEP requirements, Numeric Nutrient Criteria (expressed as annual geometric mean) cannot be exceeded more than once in a three year period. The State criteria were not exceeded for either parameter.

**Table1.** FDEP's total nitrogen and phosphorus criteria for streams applied to Freeman Creek.

| Freeman Creek | Total Nitrogen Threshold 1.03 mg/L | Total Phosphorus Threshold 0.18 mg/L |
|---|---|---|
| **2006** | 0.19 | 0.00 |
| **2007** | 0.27 | 0.00 |
| **2008** | 0.27 | 0.00 |
| **2009** | 0.24 | 0.00 |
| **2010** | 0.34 | 0.01 |
| **2011** | 0.44 | 0.01 |
| **2012** | 0.44 | 0.01 |

| Freeman Creek | Total Nitrogen Threshold 1.03 mg/L | Total Phosphorus Threshold 0.18 mg/L |
|---|---|---|
| **2013** | 0.42 | 0.00 |

*Dissolved Oxygen*

Freeman Creek's percent dissolved oxygen (DO) saturation values were below the criteria several times during the sampling period (Figure 1). Staff believes that this condition is natural since Freeman Creek has passed several bioassessments (last bioassessment completed in 2012) and there appear to be no anthropogenic causes of the low DO levels (e.g. elevated nutrient levels).

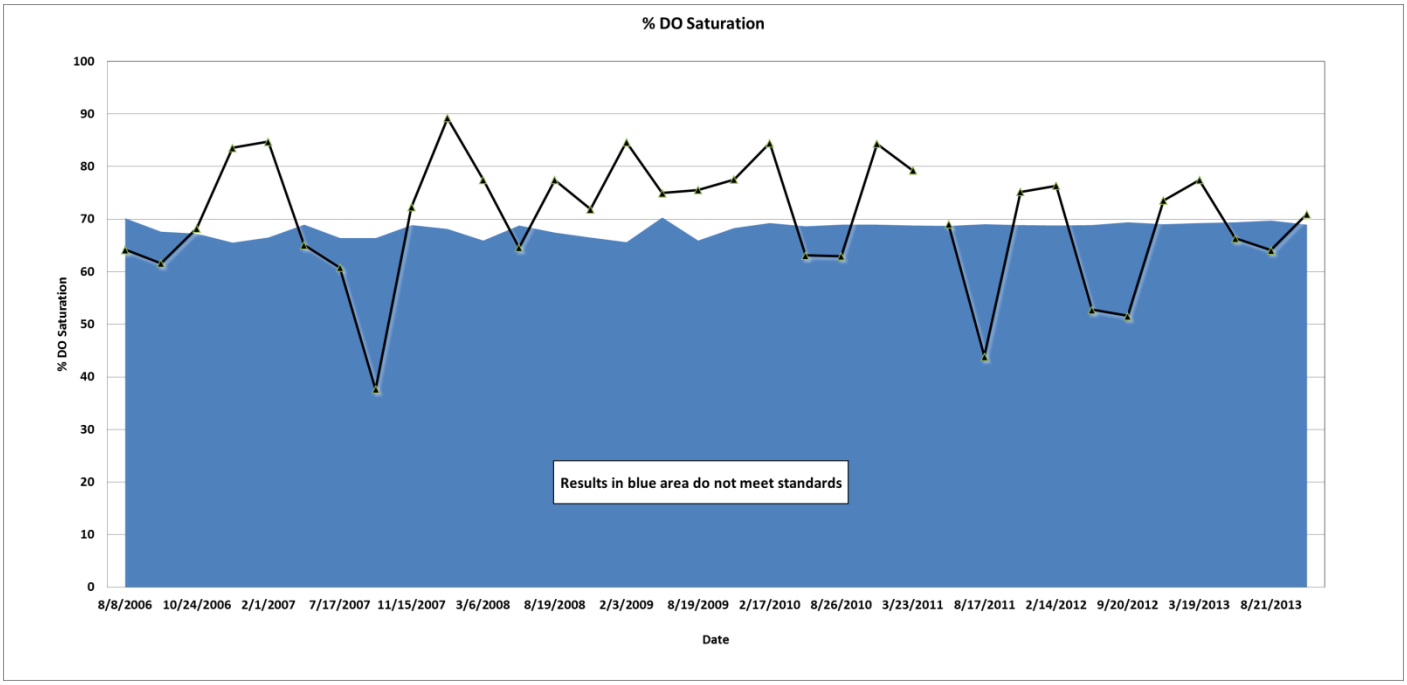



**Figure 1.** Dissolved Oxygen Percent Saturation results for Freeman Creek.

*Other Parameters*

Other water quality parameters appear to be normal for the area and no impairments were noted.

**Conclusions**

Based on ongoing sampling, Freeman Creek met the nutrient thresholds for the Big Bend Bioregion. The DO saturation values were below the criteria several times during the sampling period. Staff believes that this condition is natural since Freeman Creek has passed several bioassessments and there appear to be no anthropogenic causes of the low DO levels (e.g. elevated nutrient levels). Other water quality parameters appear to be normal.

Thank you for your interest in maintaining the quality of Leon County's water resources. Please feel free to contact us if you have any questions.

**Contact and resources for more information**

www.LeonCountyFL.gov/WaterResources

Click here to access the results for all water quality stations sampled in 2013.

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